

**APPARATUS AND METHOD FOR WRITING DATA TO MIRRORED
STORAGE USING MULTIPLE TASKS WORKING IN PARALLEL**

ABSTRACT OF THE DISCLOSURE

An apparatus and method provides the capability of mirroring storage from a
5 primary system to a mirrored system in a way that uses parallelism in the mirrored system
to maximize the efficiency of writing data to the mirrored storage for operations that do
not conflict while serializing operations that do conflict. The mirroring of the present
invention is “logical mirroring”, which does not require identical disk drives, and which
supports mirroring between geographically remote locations to protect against
10 catastrophic site failure. Parallelism is achieved in the mirrored system by dividing the
virtual address space into multiple ranges, and by assigning a group of tasks to each
range. When an operation is received on the mirrored system, the virtual address range
that the operation affects is determined, and the operation is then delegated to the task
group that corresponds to the affected virtual address range. By dividing the virtual
15 address space into ranges, tasks in different ranges (*i.e.*, in different task groups) may
execute in parallel without any threat of conflict, and even tasks within the same range
may execute in parallel if they operate in different portions of the range.